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TITLE: Epidermal **cell proliferation** and terminal differentiation in **skin** organ culture after topical exposure to **sodium dodecyl sulfate**
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ABSTRACT:
Epidermal cell **proliferation** and differentiation were investigated in vitro after exposure to the anionic surfactant SDS. Human skin organ cultures were exposed topically to various concns. of SDS for 22 h, after which the irritant was removed. Cell **proliferation** was measured immunohistochem. by incorporation of bromodeoxyuridine (BrdU) into the DNA of cells during S-phase, while the expression of transglutaminase and involucrin were used as markers of differentiation. Cell **proliferation** was moderately increased at concns. of SDS that did not affect the histomorphol. (0.1% and 0.2% SDS). A marked increase of cell **proliferation** was observed 22 to 44 h after removal of SDS at a concentration (0.4%) that induced slight
cellular damage. Exposure of human **skin** organ cultures to a toxic concentration of **SDS** (1.0%) led to decreased **cell** ***proliferation.*** Transglutaminase and involucrin were expressed in the more basal layers of the epidermis after exposure to 0.4% or 1.0% SDS. Moreover, intra-epidermal sweat gland ducts were pos. for transglutaminase at these irritant concns. These in vitro data demonstrate that SDS-induced alterations of epidermal cell kinetics, as described in vivo are at least partly due to local mechanisms and do not require the influx of infiltrate cells. However, the authors were unable to relate the altered cell kinetics to the release of interleukin-1α or interleukin-6. Furthermore, supplementation of the culture medium with 12-hydroxyeicosantetraenoic acid did not affect epidermal cell **proliferation**. Rabbit skin cultures appeared more sensitive to SDS than human skin. At nontoxic doses, the irritant induced an increase of epidermal cell **proliferation**, similar to that observed in human skin disks.

SUPPL. TERM: **skin** epidermal **cell proliferation** differentiation **SDS**
INDEX TERM: **Cell** differentiation
Cell proliferation
(epidermal **cell proliferation** and terminal differentiation in **skin** organ culture after topical exposure to **sodium dodecyl sulfate**)
INDEX TERM: **Skin**
(epidermis, epidermal **cell proliferation** and terminal differentiation in **skin** organ culture after topical exposure to **sodium dodecyl sulfate**)
INDEX TERM: Lymphokines and Cytokines
ROLE: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)

(interleukin 1, epidermal **cell proliferation** and terminal differentiation in **skin** organ culture after topical exposure to **sodium dodecyl sulfate**)

INDEX TERM: Lymphokines and Cytokines
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(interleukin 6, epidermal **cell proliferation** and terminal differentiation in **skin** organ culture after topical exposure to **sodium dodecyl sulfate**)

INDEX TERM: 151-21-3, **Sodium dodecyl sulfate**
, biological studies
ROLE: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); BIOL (Biological study)
(epidermal **cell proliferation** and terminal differentiation in **skin** organ culture after topical exposure to **sodium dodecyl sulfate**)